DIVISION OF RATEPAYER ADVOCATES

Panel 2: Energy Storage Applications and Economics

Ratepayer Perspective on Viable and Cost-Effective Energy Storage Systems

David Ashuckian, Deputy Director
Division of Ratepayer Advocates
California Public Utilities Commission

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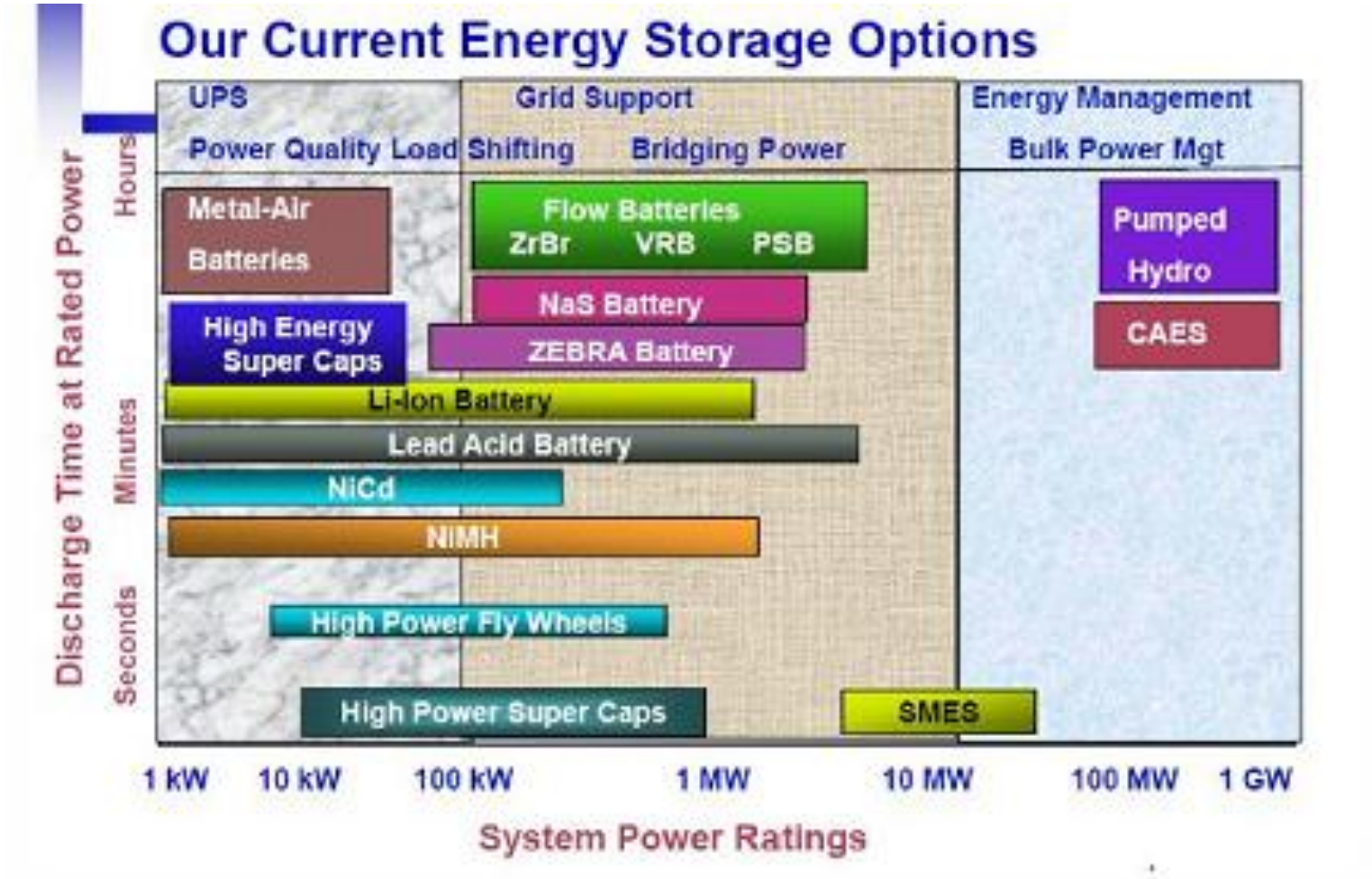
The Voice of Consumers, Making a Difference!

BACKGROUND

- Assembly Bill 2514 requires the CPUC to open a proceeding "to determine appropriate target, if any, for viable and cost-effective energy storage."
- CPUC Initiated an Order Instituting Rulemaking (OIR) on December 21, 2010 (R.10-12-007)
- Pre-Hearing Conference was held on April 21.
- A PUC scoping ruling is expected in the coming weeks.


Our Current Energy Storage Options
UPS
Power Quality Load
Grid Support
Shifting
Bridging Power
Energy Management
Bulk Power Mgt
Discharge Time at Rated Power
Hours
Minutes
Seconds
Metal-Air Batteries
Flow Batteries
ZrBr
VRB
PSB
Pumped Hydro
NaS Battery
CAES
High Energy Super Caps
ZEBRA Battery
Li-Ion Battery
Lead Acid Battery
NiCd
NIMH
High Power Fly Wheels
High Power Super Caps
SMES
1 kW
10 kW
100 kW
1 MW
10 MW
100 MW
1 GW
System Power Ratings

Energy storage has many benefits

- **Facilitate renewable intermittent resources**
- **Reduce the need to build or upgrade transmission lines.**
- **Improved power quality**
- **Ancillary services**
- **Lower GHG and other emissions**

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Implementing Energy Storage

- **Wide variety of applications/requirements**
- **AB 2514 requires that storage be " viable and cost-effective"**
- **Storage needs should be identified by application type annually in the CPUC long-term proceedings.**
  - **- Use of Plug-in Vehicles as distributed storage resources**
  - **- Dynamic Pricing / TOU Rates**
  - **- Potential Inclusion of storage in the loading order**

Other DRA Recommendations

- **California should take gradual steps towards energy storage regulations**
- **DRA recommends not mandating specific storage targets.**
- **Energy Storage should be compared to other options for viability and cost**